

## Complete Summary

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### TITLE

Pneumonia: percent of patients who had an assessment of arterial oxygenation by arterial blood gas measurement or pulse oximetry within 24 hours prior to or after arrival at the hospital.

### SOURCE(S)

Specifications manual for national hospital quality measures, version 1.04. Centers for Medicare and Medicaid Services (CMS), Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2005 Aug. various p.

### Measure Domain

#### PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

#### SECONDARY MEASURE DOMAIN

Does not apply to this measure

### Brief Abstract

#### DESCRIPTION

This measure is used to assess the percent of pneumonia patients who had an assessment of arterial oxygenation by arterial blood gas measurement or pulse oximetry within 24 hours prior to or after arrival at the hospital.

#### RATIONALE

Inadequate oxygen in the arterial blood (hypoxemia) is common in severe pneumonia and is a known mortality risk factor. Giving supplemental oxygen has been shown to decrease mortality among patients with pneumonia.

#### PRIMARY CLINICAL COMPONENT

Pneumonia; oxygenation assessment

## DENOMINATOR DESCRIPTION

Pneumonia patients 18 years of age and older (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

## NUMERATOR DESCRIPTION

Number of pneumonia patients whose arterial oxygenation was assessed by arterial blood gas (ABG) or pulse oximetry within 24 hours prior to or after hospital arrival

### Evidence Supporting the Measure

## EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

### Evidence Supporting Need for the Measure

## NEED FOR THE MEASURE

Variation in quality for the performance measured

## EVIDENCE SUPPORTING NEED FOR THE MEASURE

Kahn KL, Rogers WH, Rubenstein LV, Sherwood MJ, Reinisch EJ, Keeler EB, Draper D, Kosecoff J, Brook RH. Measuring quality of care with explicit process criteria before and after implementation of the DRG-based prospective payment system. JAMA1990 Oct 17;264(15):1969-73. [PubMed](#)

Meehan TP, Fine MJ, Krumholz HM, Scinto JD, Galusha DH, Mockalis JT, Weber GF, Petrillo MK, Houck PM, Fine JM. Quality of care, process, and outcomes in elderly patients with pneumonia. JAMA1997 Dec 17;278(23):2080-4. [PubMed](#)

### State of Use of the Measure

## STATE OF USE

Current routine use

## CURRENT USE

Accreditation  
Collaborative inter-organizational quality improvement  
Internal quality improvement  
Pay-for-performance

## Application of Measure in its Current Use

### CARE SETTING

Hospitals

### PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

### LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

### TARGET POPULATION AGE

Age greater than or equal to 18 years

### TARGET POPULATION GENDER

Either male or female

### STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

## Characteristics of the Primary Clinical Component

### INCIDENCE/PREVALENCE

Unspecified

### ASSOCIATION WITH VULNERABLE POPULATIONS

See "Burden of Illness" field.

### BURDEN OF ILLNESS

In the United States (U.S.), pneumonia is the sixth most common cause of death. From 1979-1994, the overall rates of death due to pneumonia and influenza increased by 59%. Much of the increase is due to a greater population of persons aged 65 years or older, and a changing epidemiology of pneumonia, including a greater proportion of the population with underlying medical conditions at increased risk of respiratory infection.

### EVIDENCE FOR BURDEN OF ILLNESS

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults.

Infectious Diseases Society of America. Clin Infect Dis 2000 Aug; 31(2): 347-82.  
[218 references] [PubMed](#)

## UTILIZATION

Annually, 2-3 million cases of community acquired pneumonia result in 10 million physician visits; 500,000 hospitalizations; and 45,000 deaths.

## EVIDENCE FOR UTILIZATION

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis 2000 Aug; 31(2): 347-82.  
[218 references] [PubMed](#)

## COSTS

Unspecified

## Institute of Medicine National Healthcare Quality Report Categories

## IOM CARE NEED

Getting Better

## IOM DOMAIN

Effectiveness  
Timeliness

## Data Collection for the Measure

## CASE FINDING

Users of care only

## DESCRIPTION OF CASE FINDING

Discharges, 18 years of age and older, with a principal diagnosis of pneumonia or a principal diagnosis of septicemia or respiratory failure (acute or chronic) and an other diagnosis code of pneumonia

## DENOMINATOR SAMPLING FRAME

Patients associated with provider

## DENOMINATOR INCLUSIONS/EXCLUSIONS

#### Inclusions

Discharged patients with an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code of pneumonia or ICD-9-CM Principal Diagnosis Code of septicemia or respiratory failure (acute or chronic) and an ICD-9-CM Other Diagnosis Code of pneumonia as defined in Appendix A of the original measure documentation

#### Exclusions

- Patients received in transfer from another acute care or critical access hospital, including another emergency department
- Patients who had no working diagnosis of pneumonia at the time of admission
- Patients receiving Comfort Measures Only
- Patients less than 18 years of age

#### DENOMINATOR (INDEX) EVENT

Clinical Condition  
Institutionalization

#### DENOMINATOR TIME WINDOW

Time window is a single point in time

#### NUMERATOR INCLUSIONS/EXCLUSIONS

##### Inclusions

Number of pneumonia patients whose arterial oxygenation was assessed by arterial blood gas (ABG) or pulse oximetry within 24 hours prior to or after hospital arrival

##### Exclusions

None

#### NUMERATOR TIME WINDOW

Fixed time period

#### DATA SOURCE

Administrative and medical records data

#### LEVEL OF DETERMINATION OF QUALITY

Individual Case

#### PRE-EXISTING INSTRUMENT USED

Unspecified

## Computation of the Measure

### SCORING

Rate

### INTERPRETATION OF SCORE

Better quality is associated with a higher score

### ALLOWANCE FOR PATIENT FACTORS

Unspecified

### STANDARD OF COMPARISON

External comparison at a point in time

External comparison of time trends

Internal time comparison

## Evaluation of Measure Properties

### EXTENT OF MEASURE TESTING

The core measure pilot project was a collaboration among the Joint Commission, five state hospitals associations, five measurement systems, and 83 hospitals from across nine states. Participating hospitals collected and reported data for community acquired pneumonia (CAP) measures from March 2001 to December 2001.

Core measure reliability visits were completed the summer of 2001 at a random sample of 16 participating hospitals across 6 states.

Initial data from the pilot test show a mean measure rate of 95%.

### EVIDENCE FOR RELIABILITY/VALIDITY TESTING

Joint Commission on Accreditation of Healthcare Organizations (JCAHO). A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 40 p.

## Identifying Information

### ORIGINAL TITLE

PN-1: oxygenation assessment.

### MEASURE COLLECTION

[National Hospital Quality Measures](#)

MEASURE SET NAME

[Pneumonia](#)

SUBMITTER

Centers for Medicare & Medicaid Services  
Joint Commission on Accreditation of Healthcare Organizations

DEVELOPER

Centers for Medicare and Medicaid Services/Joint Commission on Accreditation of  
Healthcare Organizations

ENDORSER

National Quality Forum

INCLUDED IN

Hospital Compare  
Hospital Quality Alliance

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2000 Aug

REVISION DATE

2005 Aug

MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures  
Clearinghouse is working to update this summary.

SOURCE(S)

Specifications manual for national hospital quality measures, version 1.04.  
Centers for Medicare and Medicaid Services (CMS), Joint Commission on  
Accreditation of Healthcare Organizations (JCAHO); 2005 Aug. various p.

MEASURE AVAILABILITY

The individual measure, "PN-1: Oxygenation Assessment," is published in "Specifications Manual for National Hospital Quality Measures." This document is available from the [Joint Commission on Accreditation of Healthcare Organizations \(JCAHO\) Web site](#). Information is also available from the [Centers for Medicare & Medicaid Services \(CMS\) Web site](#). Check the JCAHO Web site and CMS Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

## COMPANION DOCUMENTS

The following are available:

- A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the [CMS CART Web site](#). Supporting documentation is also available. For more information, e-mail CMS PROINQUIRIES at [proinquiries@cms.hhs.gov](mailto:proinquiries@cms.hhs.gov).
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 40 p. This document is available from the [JCAHO Web site](#).
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Attributes of core performance measures and associated evaluation criteria. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 5 p. This document is available from the [JCAHO Web site](#).
- Hospital compare: a quality tool for adults, including people with Medicare. [internet]. Washington (DC): U.S. Department of Health and Human Services; 2005 [updated 2005 Sep 1]; [cited 2005 Apr 15]. This is available from the [Medicare Web site](#).

## NQMC STATUS

This NQMC summary was completed by ECRI on February 7, 2003. The information was verified by the Centers for Medicare/Medicaid Services and the Joint Commission on Accreditation of Healthcare Organizations on February 12, 2003. This NQMC summary was updated by ECRI on October 11, 2005. The information was verified by the measure developer on December 7, 2005.

## COPYRIGHT STATEMENT

The Specifications Manual for National Hospital Quality Measures [Version 1.04, August, 2005] is the collaborative work of the Centers for Medicare & Medicaid Services and the Joint Commission on Accreditation of Healthcare Organizations. The Specifications Manual is periodically updated by the Centers for Medicare & Medicaid Services and the Joint Commission on Accreditation of Healthcare Organizations. Users of the Specifications Manual for National Hospital Quality Measures should periodically verify that the most up-to-date version is being utilized.

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